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THE COMPARATIVE WELLBEING OF THE
NEW ZEALAND MĀORI AND INDIGENOUS
AUSTRALIAN POPULATIONS SINCE 2000

M GRAY AND B HUNTER

Centre for
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The comparative wellbeing of the New Zealand Māori and Indigenous Australian populations since 2000

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Abstract

Some researchers have argued that strong periods of economic growth and economic downturns have a greater impact on the economic position of the Indigenous population than the non-Indigenous population in settler societies such as Australia and New Zealand. Māori have significantly higher levels of wellbeing than Indigenous Australians. The 2007–08 global financial crisis negatively affected economic growth in New Zealand in the two years after 2009, whereas the Australian economy experienced a reduction in economic growth but did not enter recession. This difference in macroeconomic conditions in countries with a similar colonial past provides an opportunity to explore the potential for differential effects of economic growth on Indigenous wellbeing. This paper argues that Indigenous economic wellbeing can be partly improved by addressing broader macroeconomic factors (as evidenced by the outcome for employment and equalised household income). However, institutional differences, cultural contexts and other societal factors are probably more important for explaining country-specific differences in observed trends in other measures of wellbeing such as psychological distress, incarceration rates and even suicide. There is no room for complacency among policy makers, who need to involve Indigenous people in the design of policies to address some distressing trends and to identify the groups who are missing out in both growing and stagnant economies.

Keywords: Indigenous, economic growth, wellbeing

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Acronyms

ABS	Australian Bureau of Statistics
ANU	The Australian National University
CAEPR	Centre for Aboriginal Economic Policy Research
CDEP	Community Development Employment Projects
GFC	global financial crisis
NATSISS	National Aboriginal and Torres Strait Islander Social Survey
OECD	Organisation for Economic Co-operation and Development

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Introduction

This paper examines trends in the wellbeing of Indigenous Australians and New Zealand Māori since 2000. This comparison is of interest because, despite the many similarities in the design of social security, criminal justice and health system institutions in the two countries, Māori have significantly higher levels of wellbeing than Indigenous Australians.¹ Notwithstanding the significant differences in the colonial histories and contemporary economic, social, institutional and political circumstances, comparison of the trends in Māori and Indigenous Australian wellbeing can provide insights into how the wellbeing of both groups of First Nations peoples might be improved.

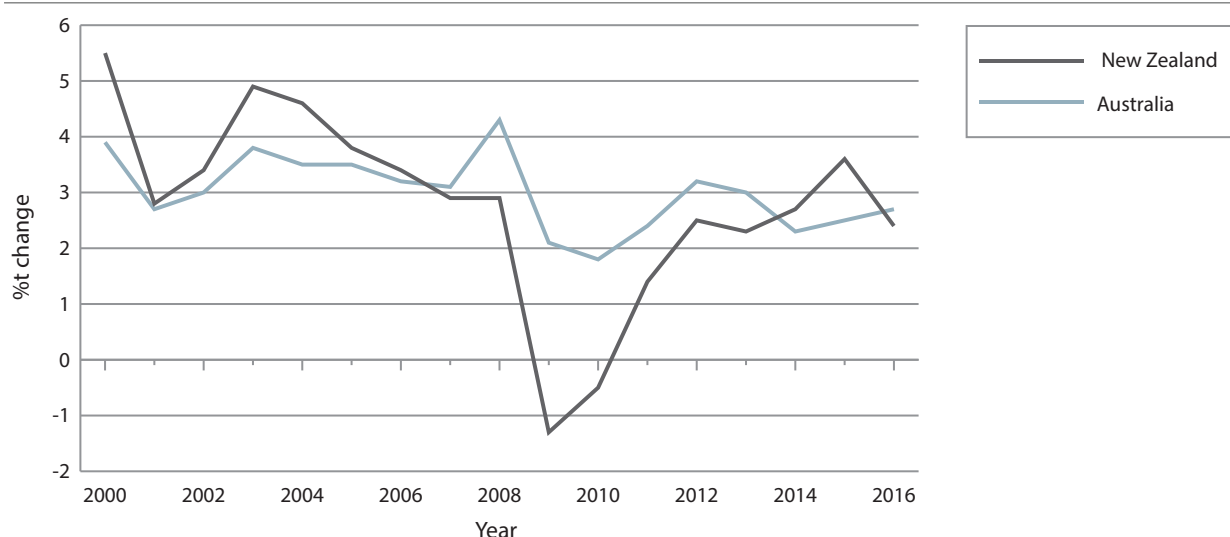
The period since 2000 is also of interest because it covers a period of strong economic growth (until 2007) and then, following the global financial crisis (GFC) of 2007–08, an economic slowdown in both countries (Fig. 1). There are good reasons for expecting that business cycle fluctuations have a greater impact on the economic position of the Indigenous population than the non-Indigenous population in settler societies such as Australia and New Zealand. For example, Indigenous people are more likely to be marginally attached to the labour force or discouraged workers than other Australians, and are likely to engage with the labour market during periods of sustained national employment growth (Hunter & Gray 2012). Also, some empirical evidence supports the hypothesis that Indigenous labour market outcomes are adversely affected in periods of relatively poor macroeconomic outcomes (e.g. New Zealand Ministry of Business, Innovation and Employment 2015; Gray & Hunter 2016; Perry 2016).

The negative economic consequences of economic downturns can have flow-on effects on a range of aspects of wellbeing, including financial hardship, criminal justice outcomes, and mental and physical health (Rehkopf & Buka 2006, Weatherburn et al. 2008, Cole et al. 2009).² The impact of economic downturns on the wellbeing of Indigenous populations has received little research attention; indeed, we could not identify any cross-country comparisons of changes in Indigenous wellbeing over the business cycle. The GFC negatively affected economic growth in New Zealand in the two years after 2009, whereas the Australian economy, while also experiencing a reduction in economic growth, did not enter recession. It is possible that these differences in the macroeconomic circumstances resulted in differential trends in Indigenous wellbeing in the two countries, at least for those indicators that are sensitive to economic factors. If macroeconomic factors affect Indigenous and non-Indigenous wellbeing in a similar manner (and there are no other major influences on Indigenous outcomes), there should be no observable differences in the trends of relative measures of wellbeing after the GFC.

We conceptualise wellbeing as being multifaceted and including economic measures, health status and criminal justice outcomes.

Although similar information may be available for each country, comparing measures of wellbeing across countries and over time can be challenging because of differences in survey questions and definitions, methods of data collection and the nature of administrative collections that are used to construct measures of wellbeing (such as incarceration rates). The difficulties are magnified when comparing the wellbeing of Indigenous

FIG. 1. Real gross domestic product (annual average % change), New Zealand and Australia, 2000–16



Source: Reserve Bank of New Zealand, www.rbnz.govt.nz/statistics/key-graphs/key-graph-real-gdp

populations across countries because of differences in how Indigenous status is defined and measured in various statistical collections.

The approach taken in this paper is to compare the wellbeing of the Indigenous population with that of the non-Indigenous population. Where there are enough observations, the trends in relative wellbeing are presented as a 'line of best fit' to represent long-run trends.³ This approach is adopted for two reasons. First, by focusing on the ratio of Indigenous to non-Indigenous wellbeing in a given country, differences in the underlying wellbeing between countries are controlled for. Second, to the extent that there are subtle changes in the various measures over time in a country, the ratio of Indigenous to non-Indigenous wellbeing is likely to provide a more robust measure of changes in the relative wellbeing of the Indigenous population.⁴

Western and Tomaszewski (2016) distinguish between objective and subjective measures of wellbeing. This paper focuses on objective measures of wellbeing, which are less likely to be influenced by the social and cultural contexts in the respective countries.

The specific measures of wellbeing examined are employment, equivalised household income,⁵ psychological distress, incarceration and suicide. These measures have been chosen partly because they capture a range of complementary aspects of wellbeing and partly because they are available in a form that is comparable for both Australia and New Zealand, and across time.

The measures of wellbeing used in this paper can be interpreted as either an improvement or a worsening in Indigenous wellbeing, depending on the direction of change relative to the respective non-Indigenous populations. We do not consider Indigenous-specific measures of wellbeing. Although this might be considered a limitation of our work if we were analysing subjective measures of wellbeing, it is less of an issue for more objective measures where there is more agreement about relevant outcomes or there has been some clinical validation.

The remainder of the paper describes the measures of Indigenous wellbeing used and identifies the trends in relative wellbeing. The paper concludes by reflecting briefly on the interpretation of the observed trends. The main conclusion is that, while there is evidence of broader macroeconomic factors affecting the measures of economic wellbeing, such as employment and income, and institutional and policy differences, cultural contexts

and other societal factors are probably more important for explaining country-specific difference in other observed trends in wellbeing.

Measures of wellbeing

This section provides an overview of the details of the measures of wellbeing used in this paper. Māori data are based on self-reported ethnicity by the survey respondent.⁶ Indigenous Australians are identified in most official data using the self-report for the Australian Bureau of Statistics (ABS) standard Indigenous identification question: 'Are you of Aboriginal or Torres Strait Islander origin?' This question also allows respondents to report that they are both 'Aboriginal' and 'Torres Strait Islander', if that is how they identify.

The decision needs to be made as to whether to age standardise the estimates of wellbeing. This is particularly important for measures that show a strong age pattern, where there is a different age structure between the groups being compared, or where the age structure is changing significantly over the period being considered. It is conventional to age-standardise measures of psychological distress, incarceration and suicide; therefore, we report age-standardised estimates for these measures. As is conventional in the economics literature, employment rates are not age standardised. However, these estimates are provided only for the working-age population. Equivalised household income is not age standardised because it is a household measure.

Paid employment

Employment rates are reported for the population aged 20–64 years. People aged 15–19 years are excluded to avoid the impact of the transition period from secondary school. For Australia, Community Development Employment Projects (CDEP) participants are classified as being not employed.⁷ The New Zealand estimates are based on census data. The Australian estimates are based on data from the National Aboriginal and Torres Strait Islander Social Survey (NATSISS), to produce estimates of employment that accurately classify CDEP participants as being not employed (the census data do not provide an adequate identification of all CDEP participants). The CDEP scheme was replaced with the Remote Jobs and Communities Program (RJCP), which was operating in 2014. RJCP participants are classified as being not employed. Employment estimates for the total Australian population are used as the measure for the non-Indigenous population. Given that the Indigenous population is only a small proportion of the Australian

population, the use of the estimate for the total population will have only a very small effect on the estimates of the ratio of Indigenous to non-Indigenous employment rates.

Equivalised household income

Financial living standards are captured using data on real (adjusted for inflation) equivalised median household income. Equivalised household income is total household income adjusted for differences in living costs for households of different sizes and compositions, to allow the relative material wellbeing of different households to be compared. For the New Zealand data, the Jensen equivalence scale has been used. For the Australian data, the modified Organisation for Economic Co-operation and Development (OECD) equivalence scale has been used. Perry (2016:192) shows that, for New Zealand, the modified OECD scale and the revised Jensen equivalence scale produce very similar estimates of mean equivalised household incomes.

The New Zealand measure is taken from Perry (2016), who uses Household Economic Survey (various years) data to calculate real median annual equivalised disposable household income (i.e. after-tax cash income before housing costs are deducted, adjusted for household size and composition) for persons aged 15 years and over.⁸ The household's equivalised income is attributed to the individual (Perry 2016). The estimates for New Zealand report the ratio of Māori equivalised median household income to non-Māori equivalised median household income. We have not been able to locate published data on Māori to non-Māori equivalised household income. However, this appears to have a relatively small impact on the changes in the ratio of income over time.⁹

The Australian equivalised median household income data are taken from NATSISS and various National Health Surveys. The measure used is real equivalised gross household income, since there is no reliable measure of tax in these surveys to estimate disposable income (Howlett et al. 2016). The estimates for Australia report the ratio of Indigenous to non-Indigenous incomes.

Readers should not attempt to directly compare the levels of the measured household income in Australia and New Zealand. However, we argue that there is substantive information on how Indigenous and Māori households fare relative to other residents in their respective countries.

Psychological distress

Mental health is measured using the Kessler Psychological Distress Scale, which is a nonspecific, clinically validated psychological distress scale designed to measure levels of negative emotional states experienced by respondents in the four weeks before they are interviewed (Kessler et al. 2002, ABS 2012). According to responses to the questions, respondents are classified as having 'low', 'moderate', 'high' or 'very high' psychological distress. 'High' or 'very high' psychological distress is an indicator of current psychological distress and may indicate a need for professional help.

In this paper, the measure used is the proportion of the adult population that experiences high or very high psychological distress.¹⁰ Data are taken from various editions of the New Zealand Health Survey, NATSISS and ABS National Health surveys. The estimates are age standardised.

Incarceration

Incarceration rates are the product of the interaction between rates of criminality, policing and the operation of the criminal justice system. Higher rates of imprisonment are an indicator of relatively poor outcomes for a population group. Following convention, we report incarceration as a rate per 100 000 adult population. Data are taken from the New Zealand Department of Corrections *Prison facts and statistics* (June quarter) data reports and Offender Population Reports, and the ABS publication *Prisoners in Australia* (ABS various years c).

Suicide

Caution needs to be exercised when comparing suicide rates across countries, because a number of factors affect the recording and classification of suicide. Comparison of the relative rates of suicide between the Indigenous and non-Indigenous population mitigates many of the difficulties associated with cross-country comparisons of suicide rates.

In this paper, age-standardised suicide rates are presented per 100 000 adult population. Data for New Zealand are sourced from the New Zealand Mortality Collection.¹¹ A death is only classified as suicide by the coroner following a coronial inquiry. In Australia, data limitations mean that reliable data on suicide rates by Indigenous status are only available for New South Wales, the Northern Territory, Queensland, South Australia and Western Australia (ABS various years a,b). Data for the Australian Capital Territory, Tasmania and Victoria are not available.

Trends in wellbeing

Employment rates

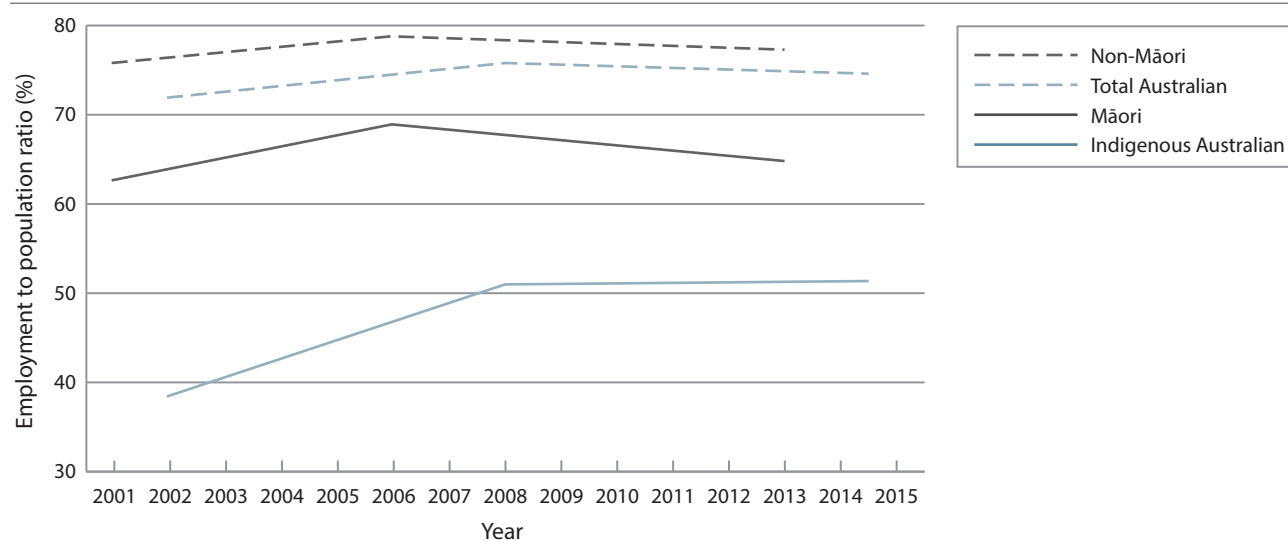
Fig. 2 shows the employment to population ratio by Indigenous status for New Zealand and Australia, and Fig. 3 presents this information as the ratio of the Indigenous to non-Indigenous rate for each country. The key points to take from these figures are as follows:

- The Māori employment rate is substantially higher than that of Indigenous Australians. For example, the

employment rate of the working-age Māori population was 65% in 2013, and for Indigenous Australians it was 51% in 2014.

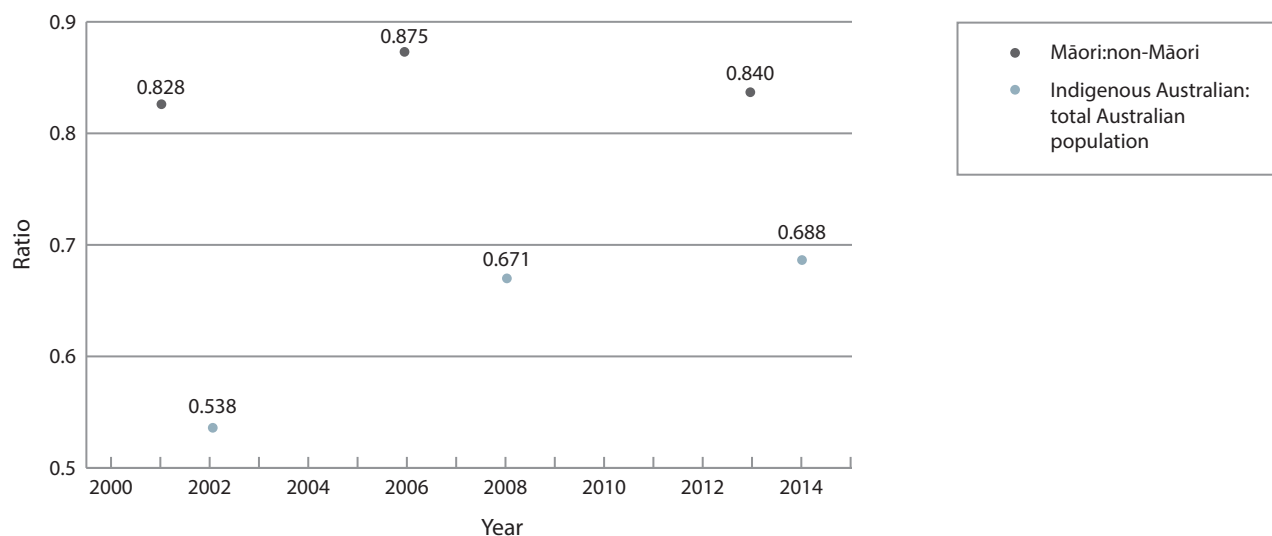
- Employment rates for Māori and Indigenous Australians increased substantially before the GFC. The Māori employment rate increased from 63% in 2001 to 69% in 2006, and the Indigenous Australian employment rate increased from 39% to 51% over this period.

FIG. 2. Employment to population ratio by Indigenous status, 20–64 years, Australia and New Zealand, 2001–14



Sources: Estimates for New Zealand use the 2001, 2006 and 2013 censuses. Estimates for Indigenous Australians are from the 2002, 2008 and 2014–15 National Aboriginal and Torres Strait Islander Social Survey. Estimates for the total Australian population are from the Labour Force Survey for June.

FIG. 3. Ratio of Indigenous to non-Indigenous employment to population rate, 20–64 years, Australia and New Zealand, 2001–14



Notes:

1. See Fig. 2.

2. We argue that 'lines of best fit' are not very useful when there are only three estimates available. Readers can draw lines between the estimates in this figure to get a sense of trends.

Sources: See Fig. 2.

- Following the GFC, increases in Indigenous Australian employment rates stalled, and in New Zealand Māori employment rates fell substantially.
- During the first half of the 2000s, the Māori–non-Māori and Indigenous–non-Indigenous Australian employment gaps narrowed.
- Since 2006, the Māori–non-Māori employment gap has increased slightly, and the Indigenous–non-Indigenous Australian gap has narrowed very slightly as a result of a fall in the non-Indigenous employment rate.

Taken together, these trends are suggestive of the importance of macroeconomic conditions for Indigenous Australian and Māori employment rates. The economic slowdown was greater in New Zealand than in Australia (Fig. 1), and the negative impact on Indigenous employment was greater in New Zealand than in Australia.

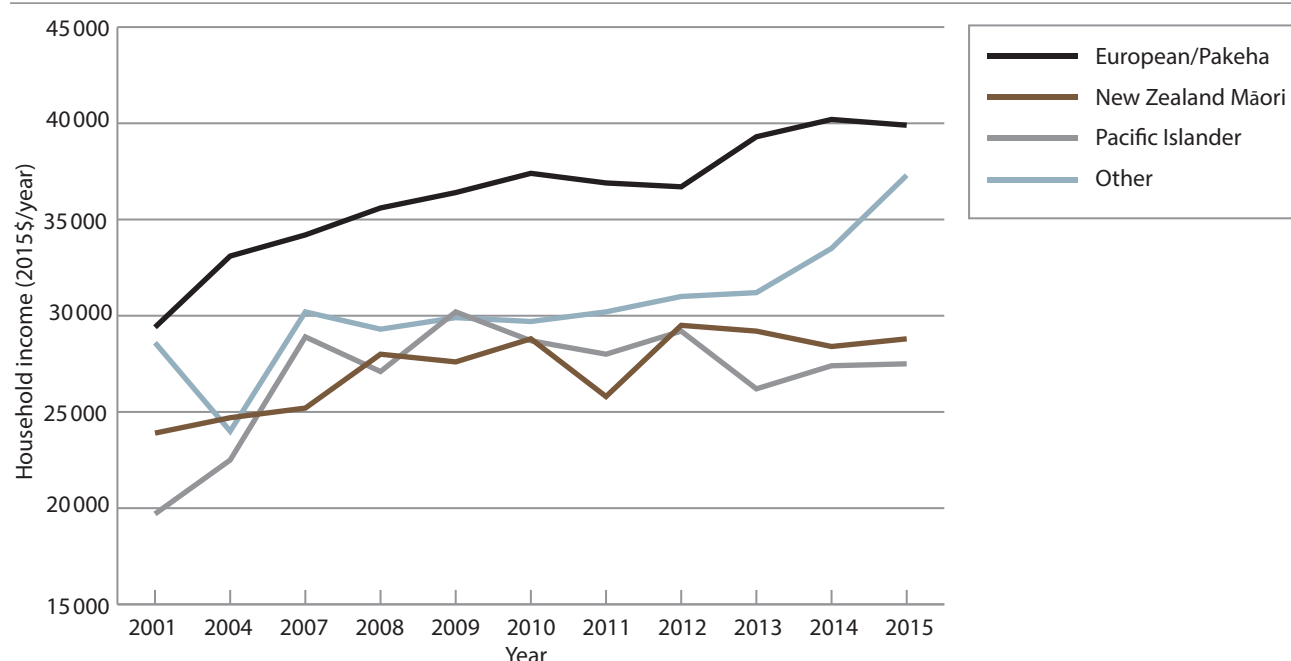
Median equivalised household income

Figs 4 and 5 show the median equivalised household incomes since the early 2000s by Indigenous status for New Zealand and Australia, respectively. Fig. 6 presents the ratio of Indigenous household income to non-Indigenous Australian household income, and of

Māori to European/Pakeha household incomes. The key points to take from these figures are as follows:

- Māori and Indigenous Australian households have much lower equivalised household incomes than non-Māori and non-Indigenous Australian households. The gap in household incomes is much larger in Australia than in New Zealand; the ratio ranges from 0.70 to 0.81 for New Zealand and from 0.54 to 0.64 for Australia.
- Growth in real equivalised household incomes for all groups was quite strong from 2001 to 2015 in New Zealand and Australia, although the increase was larger in New Zealand than in Australia.
- In Australia, the household income gap narrowed slightly between 2002 and 2006, reflecting the strong increases in employment; increased slightly between 2008 and 2012; and then narrowed very substantially between 2012 and 2014–2015 to be 0.64. The increase in the ratio of 0.1 is surprising given that there was not a big increase in Indigenous employment over this period, but it was in the context of falling non-Indigenous household incomes. Indigenous Australians may well be employed in jobs that are lower paid, and thus the potential for falls in equivalised household incomes may be smaller.

FIG. 4. Median equivalised household income by Indigenous status, New Zealand, 2001–15



Notes:

1. Estimates for population aged 15 years and over.

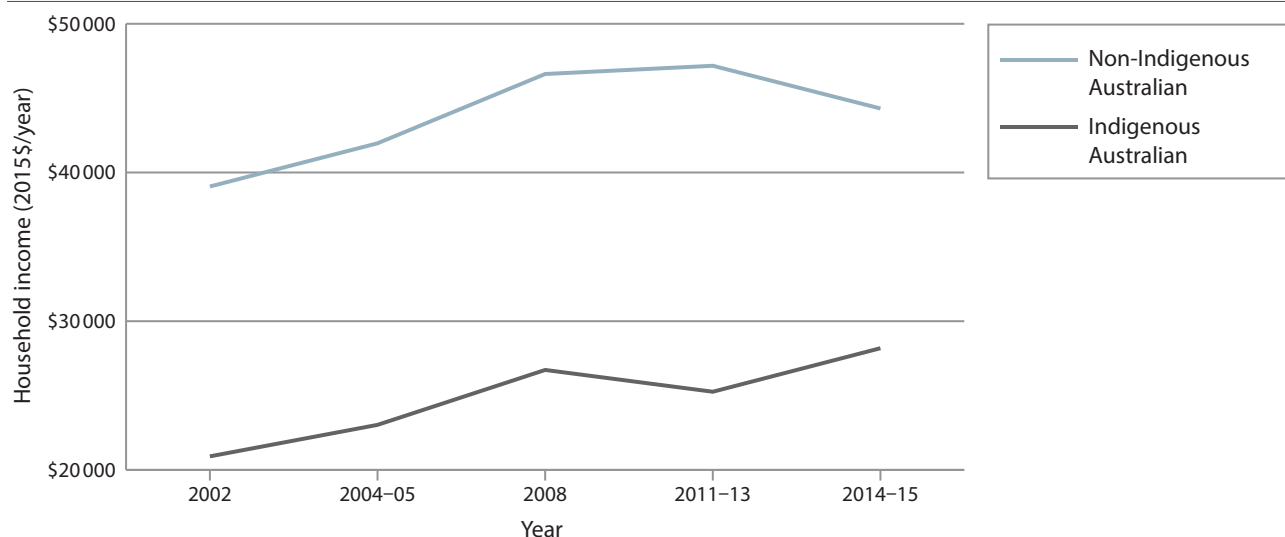
2. The Jensen equivalence scale is used.

Source: Derived from Perry (2016)

- Overall, there is a slight downward trend in the ratio of Māori to European/Pakeha household equivalised incomes, whereas the estimates indicate little or no trend in the equivalised household incomes for Indigenous Australians relative to non-Indigenous Australians. These trends in relative income are also broadly consistent with the relatively poor macroeconomic conditions in New Zealand compared

with Australia; however, the relationship is weaker than observed in employment data because income is also affected by changes in transfer payments and demographic changes.

FIG. 5. Median equivalised household income by Indigenous status, Australia, 2002–15



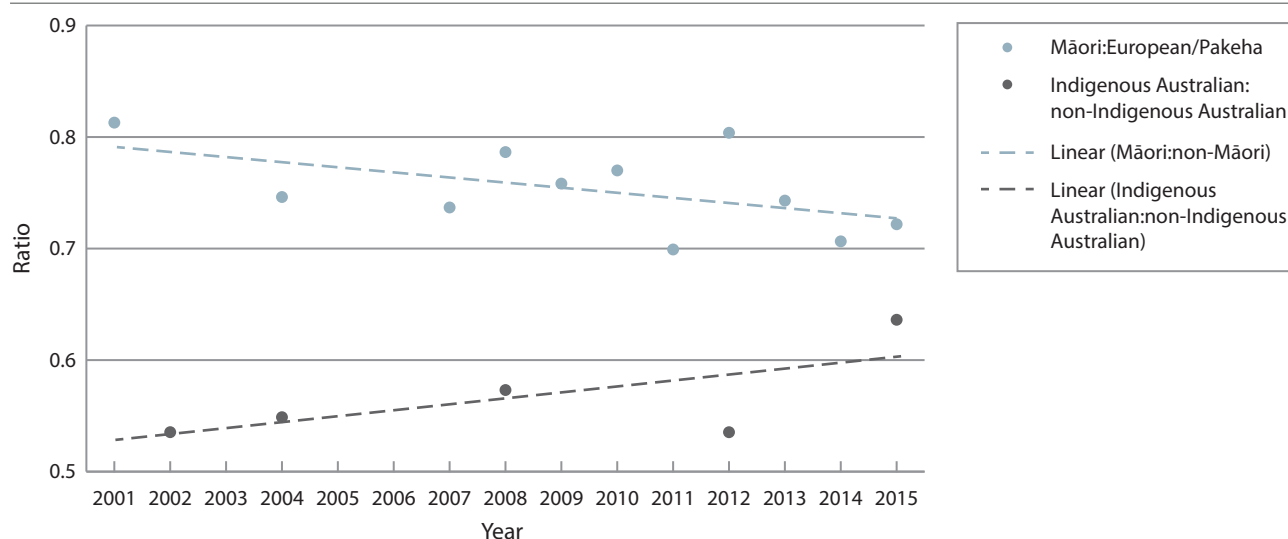
Notes:

1. Population aged 18 years and over.

2. Modified Organisation for Economic Co-operation and Development equivalence scale is used.

Sources: Derived from the Steering Committee for the Review of Government Service Provision (2016) based on data from the 2002, 2008 and 2014–15 National Aboriginal and Torres Strait Islander Social Survey; the 2004–05 National Aboriginal and Torres Strait Islander Health Survey; the 2012–13 Australian Aboriginal and Torres Strait Islander Health Survey; the 2002 General Social Survey; the 2004–05, 2007–08 and 2014–15 National Health Survey; and the 2011–13 Australian Health Survey.

FIG. 6. Ratio of Indigenous to non-Indigenous equivalised household incomes, Australia and New Zealand, 2001–15



Notes: See Figs 4 and 5.

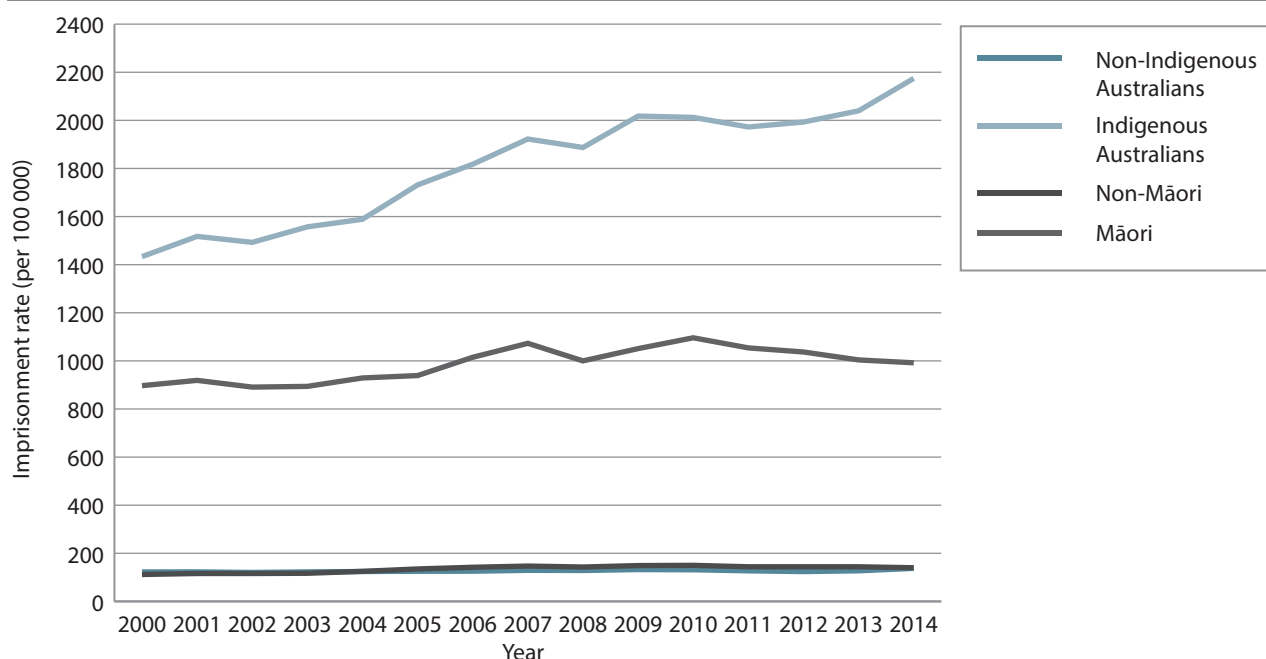
Sources: See Figs 4 and 5.

Imprisonment rates

Fig. 7 shows the imprisonment rates for New Zealand and Australia by Indigenous status, and Fig. 8 shows the ratio of Māori to non-Māori and Indigenous to non-Indigenous Australian imprisonment rates.¹² The key points to take from these figures are as follows:

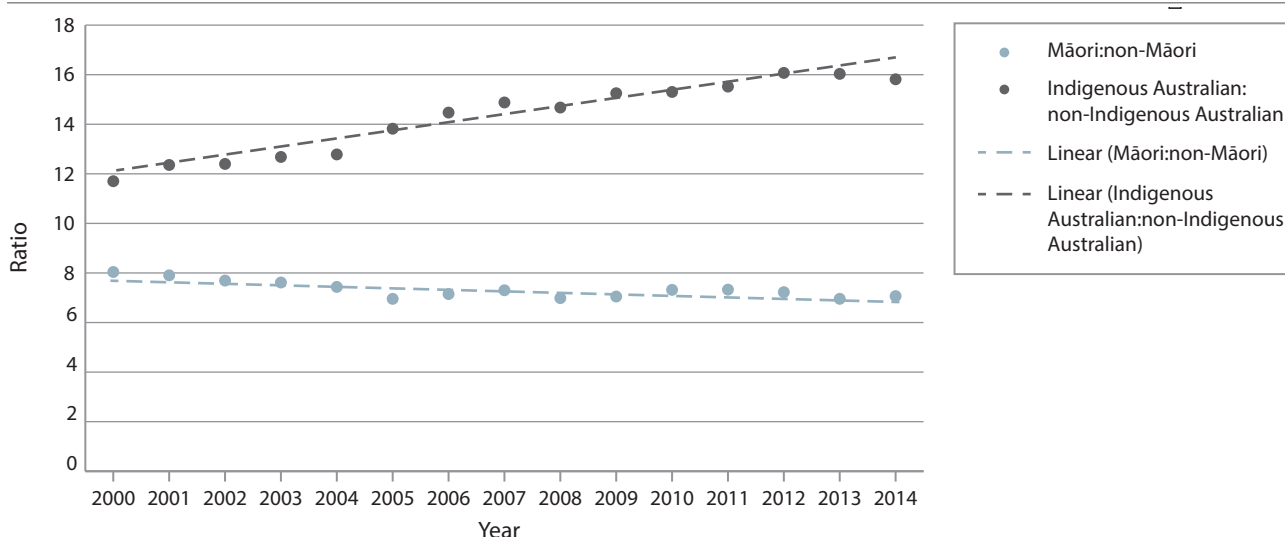
- Indigenous Australians have a higher imprisonment rate than Māori, and the difference has increased very substantially since 2000. In 2000, the imprisonment rate per 100 000 population was 897 for Māori and 1434 for Indigenous Australians. By 2014, this rate had increased to 2175 for Indigenous Australians, while the Māori rate had increased to 992.

FIG. 7. Imprisonment rates (per 100 000 adult population) by Indigenous status, Australia and New Zealand, 2000–14



Source: New Zealand data are derived from the New Zealand Department of Corrections *Prison facts and statistics* (June quarter) data reports (www.corrections.govt.nz/resources/research_and_statistics/quarterly_prison_statistics.html), Offender Population Report (www.corrections.govt.nz/resources/research_and_statistics/offender-volumes-report.html), and the estimated resident population from New Zealand Statistics. Australian data are sourced from Steering Committee for the Review of Government Service Provision (2016) and ABS (various years c).

FIG. 8. Ratio of Indigenous to non-Indigenous imprisonment rates (per 100 000 adult population), 2000–14



Sources: See Fig. 7.

- In both New Zealand and Australia, the Indigenous imprisonment rate is many times higher than the non-Indigenous imprisonment rate. For Māori, the imprisonment rate declined slightly from around 8 times that of non-Māori in 2000 to be about 7 times as high in 2014. For Indigenous Australians, the imprisonment rate relative to the rate for the non-Indigenous population is higher than in New Zealand, and increased rapidly over the period from 11.7 times to 15.8 times as high by 2013.

Psychological distress

This section reports the data on rates of psychological distress. For both New Zealand and Australia, data from the Kessler questions are available. Unfortunately, some differences in the implementation of the Kessler questions in the two countries may make the estimates not directly comparable. For this reason, we present only the ratio of Indigenous to non-Indigenous rates of experiencing high or very high psychological distress (Fig. 9), which, in our judgment, provides a valid cross-country comparison over time. The key points from Fig. 9 are as follows:

- Indigenous Australians are much more likely to be experiencing high or very high psychological distress than are non-Indigenous Australians, and, since 2004, this has become worse.
- Māori are also more likely to experience high or very high psychological distress than is the non-Māori

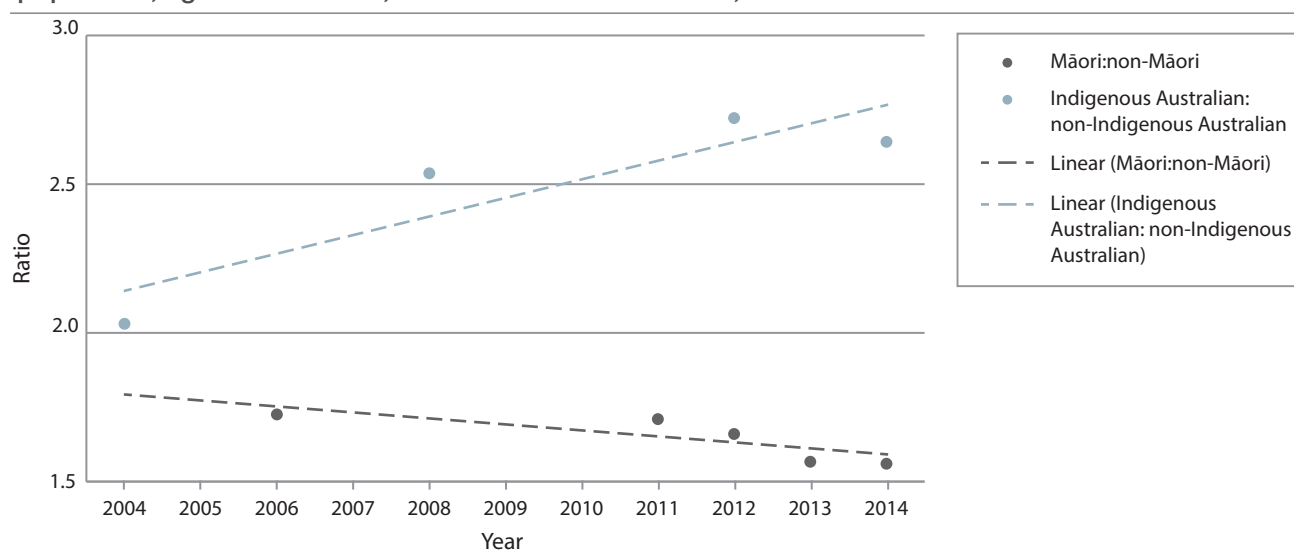
population, but the difference is smaller than between Indigenous and non-Indigenous Australians. From 2006 to 2014, the difference between Māori and non-Māori rates of experiencing high or very high psychological distress fell.

Suicide rates

Fig. 10 shows the suicide rate (per 100 000 population) by Indigenous status, and Fig. 11 shows the ratio of Indigenous to non-Indigenous Australian rates and Māori to non-Māori rates. Because suicide is relatively rare, the suicide rate can vary quite substantially from year to year and therefore should be interpreted with caution. The key points from these figures are as follows:

- Indigenous Australians have a substantially higher suicide rate than their non-Indigenous counterparts; the rate has fluctuated between 1.7 times as high in 2003 and 2.7 times as high in 2011.
- The Māori suicide rate is also higher than that of the non-Māori population, increasing from close to 1 in 2001 to 1.5 or more from 2010.
- Both Māori and Indigenous Australian suicide rates have increased substantially relative to the non-Indigenous populations in the respective countries. These long-run trends are a result of factors that are only affecting Indigenous populations because both non-Māori and non-Indigenous suicide rates have generally declined.

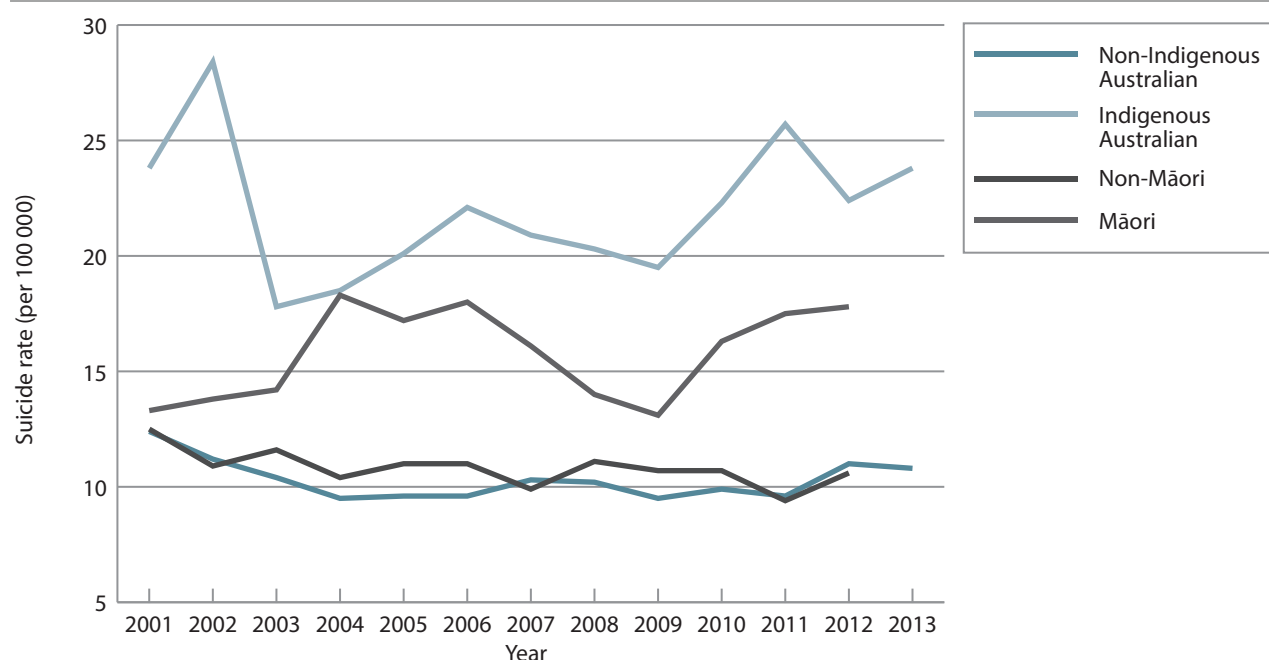
FIG. 9. Ratio of Indigenous to non-Indigenous high/very high psychological distress rates, adult population, age standardised, New Zealand and Australia, 2004–14



Notes: Estimates for New Zealand are for the Kessler 10-item questionnaire (K10) and are for the population aged 14 years and over. Estimates for Australia are from the Kessler K5, which has been specifically developed for the Australian Indigenous population. The Australian estimates are for the population aged 18 years or older, and have been age standardised to the 2001 Australian estimated resident population.

Sources: Estimates for New Zealand are from New Zealand Ministry of Health (2008, 2012, 2013, 2014, 2015) and are based on the 2006–07, 2011–12, 2012–13, 2013–14 and 2014–15 New Zealand Health Survey. Estimates for Australia are from ABS (2014) and ABS (2016), and are based on the 2002, 2008 and 2014–15 National Aboriginal and Torres Strait Islander Social Survey; the 2012–13 Australian Aboriginal and Torres Strait Islander Health Survey; the 2001 and 2004–05 National Health Survey; the 2011–13 Australian Health Survey; and the 2014–15 National Health Survey.

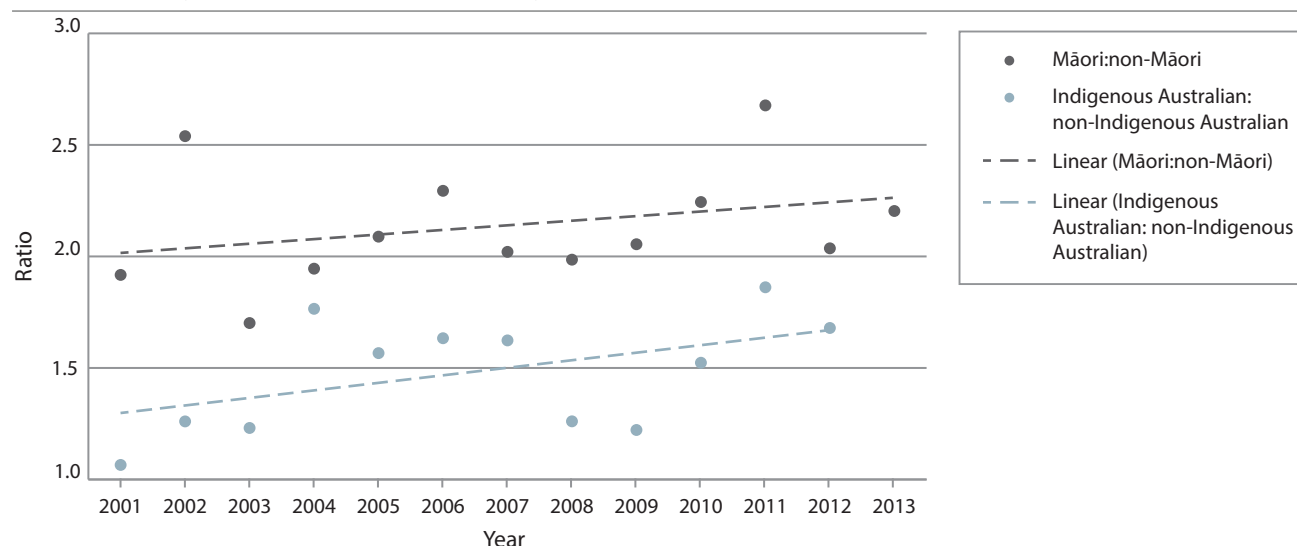
FIG. 10. Suicide rates (per 100 000 adult population) by Indigenous status, age standardised, New Zealand and Australia, 2001–13



Notes: The Australian data are only for New South Wales, the Northern Territory, Queensland, South Australia and Western Australia. Suicide rates by Indigenous status are not available for the Australian Capital Territory, Tasmania or Victoria because of concerns about the data quality of the Indigenous identifier.

Sources: Estimates for New Zealand are from New Zealand Ministry of Health (2016). Estimates for Australia are from ABS (various years a,b).

FIG. 11. Ratio of Indigenous to non-Indigenous suicide rates (per 100,000 adult population) age standardised, New Zealand and Australia, 2001–13



Notes: See Fig. 10.

Sources: See Fig. 10.

Concluding comments

This paper has examined the relative wellbeing of Indigenous and non-Indigenous Australians, and Māori and non-Māori New Zealanders using several important measures of wellbeing: employment, income, health and incarceration. Indigenous Australians fare worse relative to the non-Indigenous Australian population than Māori fare relative to the non-Māori population for all the wellbeing measures considered.

However, some improvement for Indigenous Australians was seen in employment and income in absolute terms and relative to the non-Indigenous population, potentially because the Australian economy was much more robust than the New Zealand economy during the latter part of the period under analysis. For Māori, there were improvements in employment and income relative to the non-Māori population while the economy was growing strongly, and then some relative worsening once economic growth slowed. It appears that macroeconomic factors are affecting these 'economic' measures of wellbeing.

For all other measure of wellbeing measured in this paper, outcomes for Indigenous Australians have significantly worsened. This is not necessarily the case for Māori, for whom there was some improvement in rates of incarceration and psychological distress relative to non-Māori. However, suicide rates increased for Māori but actually decreased for the non-Māori population. The remarkable increase in Australian Indigenous imprisonment rates, relative to both the rates for non-Indigenous Australians and the New Zealand estimates, may be indicative of a policy failure that requires urgent attention to identify new approaches to address and reverse the trend.

The results present something of a conundrum because, if employment and household incomes are improving, then, all else being equal, one might expect this to translate into better outcomes for other wellbeing measures. However, economic factors arguably affect incarceration, psychological distress and suicide only indirectly because the resources available to individuals and households do not necessarily affect interactions with the criminal justice system and psychological health.

One possible explanation for the lack of correlation between economic and other wellbeing in Australia is that we have not captured changes in the distribution of economic outcomes across society. There may be substantial groups of Indigenous Australians and Māori who are missing out even when the economic

opportunities are enhanced, on average. It appears that in New Zealand there is less tension between the economic and non-economic wellbeing outcomes for Māori, because relative incarceration and suicide rates increased when employment and income outcomes declined, especially after the GFC.

In summary, economic wellbeing can be partially enhanced by addressing broader macroeconomic factors. However, institutional differences, cultural contexts and other societal factors are probably more important for explaining country-specific differences in observed trends in other measures of wellbeing. There is no room for complacency among policy makers, who need to involve Indigenous people in the design of policies to address some distressing trends, and to identify the groups who are missing out in both growing and stagnant economies.

Notes

1. See, for example, AIHW (2011), Cooke et al. (2007) and Hunter and Daly (2013).
2. The correlation of wellbeing with these outcomes is probably strongest for subpopulations and individual-level data. For example, Rehkopf and Buka (2006) present meta-analysis evidence that suicide is inversely correlated with socioeconomic outcomes measured at the macro or national level; however, more of the correlations between these outcomes are significant when measured at a neighbourhood level.
3. These linear trends or 'lines of best fit', arguably minimise the effect of sampling error in underlying survey/administrative data on observed trends.
4. For example, an earlier study by Borland and Hunter (2000) constructed international measures of arrest and labour market outcomes for Indigenous and non-Indigenous populations in four English-speaking former colonies. However, the substantial differences in the institutional structures meant that the differences in absolute levels were more difficult to interpret than wellbeing indicators measured relative to non-Indigenous populations in their respective countries.
5. Income is equivalised to account for variability in the size and composition of households. Larger households cost more than smaller households because of 'economies of scale'. In terms of composition, children are assumed to need less income than adults to maintain a given level of wellbeing or utility. One widely used equivalence scale is the modified OECD scale (OECD n.d.) that is used in this paper (unless otherwise indicated).
6. If a respondent reports more than one ethnicity, then ethnicity is attributed according to a prioritised classification of Māori, Pacific Islander, Other and then European/Pakeha.
7. The CDEP scheme has been an important institutional feature of the Australian Indigenous labour market over the past three decades (Gray & Hunter 2011). Recipients are expected to work at least part-time for their benefit entitlements. However, the reforms since 2008 have meant that CDEP has increasingly become more like the mainstream Work for the Dole scheme, or even a standard labour market program, than a community development scheme. The number of CDEP participants fell from around 35 000 in 2002–03 to around 2200 'grandfathered' participants in 2015 (Hunter 2016).
8. Median income is a robust summary measure of income that is not sensitive to changes in the extremes of the distribution. If inequality is increasing substantially, then median income trends will be more reliable measures than the trends in mean income.
9. For example, in 2001, the ratio of Māori to non-Māori median equivalised household income was 0.813 and the ratio of Māori to the total population median equivalised household income was 0.863. In 2015, the ratio of Māori to non-Māori median equivalised household income was 0.722 and the ratio of Māori to the total population equivalised household income was 0.787.
10. There are several versions of the Kessler Psychological Distress Scale. In the New Zealand Health Survey, a 10-question version is used (K10). The ABS uses both the K10 version and a six-question version (K6) for the total Australian population, and uses a five-question version (K5) for the National Aboriginal and Torres Strait Islander Health Survey and the National Aboriginal and Torres Strait Islander Social Survey. In a comparison of the performance of the K6 and K10 versions, Furukawa et al. (2003) found that the K10 was marginally better than the K6 in screening for Composite International Diagnostic Interview (CIDI), and Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV), mood and anxiety disorders, although the K6 is preferred because of its brevity and consistency across subsamples. The K5 is a subset of questions derived from the K10, with some minor wording changes. The ABS reports that Professor Kessler was consulted and indicated that the K5 provided a useful measure of psychological distress (ABS 2012).
11. See <https://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/collections/mortality-collection>.
12. It was not possible, with available data, to estimate age-standardised incarceration rates for Māori, and so non-age standardised data are reported. However, when the trends in age-standardised Indigenous and non-Indigenous incarceration rates for Australia are examined, the conclusion of a large increase in the relative rate of incarceration holds. Of course, age standardisation reduces somewhat the difference in incarceration rates between the Indigenous and non-Indigenous populations.

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